

## VERSION WITH MARKINGS TO SHOW CHANGES MADE

### In the Other References

The following reference has been added as follows:

W. Kahan, *Branch Cuts for Complex Elementary Functions*, in *The State of the Art in Numerical Analysis* eds. A. Iserles & M. J. D. Powell, Clarendon Press, Oxford, 1987.

In the second reference the title is changed to:

*Intelligent Systems for [Engineers]Engineering --*

### In the Summary of the Invention

Page 3 in line 20 has been amended as follows:

-- complex yod group of symmetric and descending objects with one embedded --

Page 3, the second to last line has been amended as follows:

-- addition. Last, propositional functions are constructed from the extraction  
/detection of numerical sequences --

Page 4 line 2 has been amended as follows:

-- the mechanism of extraction /detection ( $\Delta$ ) is because the angle and length ratios  
are in pairs just as --

Page 4 line 3 has been amended as follows:

-- the special angle seed matrices extract /detect digit pairs from  $e$  and  $\pi$ ,  $(2)^{1/2}$   
and  $(3)^{1/2}$ . Since --

### In the Detailed Description of the Invention

After the first paragraph in the Detailed Description of the Invention on page 4, the  
following paragraph has been added as follows:

-- The operational function,  $dL/d\theta$  where  $L$  is LengthOfString for  $\pi$ ,  $e$ ,  $(2)^{1/2}$  or  $(3)^{1/2}$   
decimal expansions and  $\theta$  is the 16 special angles converted from degrees to  
radians, is expressed as a quotient of integers where the numerator is in terms of  
length of decimal position and the denominator in terms of degrees/radians on the  
unit circle mod 360. --

Page 6, paragraph 4, line 5 has been amended to:

-- where the matching digits were extracted /detected from, extend to infinity defined as  $1/0$  at the --

Page 6, paragraph 4, line 6 has been amended to include a  $\pm$  as follows:

--origin and are symbolized by the non-Euclidean  $\pm 0^\circ-90^\circ-90^\circ$  intermediary structure. The --

Page 7 line 4 has been amended to:

--  $r_n$  and for each extracted /detected digit position, a term from the matching special angle sequence --

Page 7 paragraph 1 line 3 has been amended to include a  $\pm$  as follows:

-- origin. Implementation of a non-Euclidean metric  $\pm 0^\circ-90^\circ-90^\circ$  triangle (FIG. 1) is an --

Page 7 paragraph 2 line 1 has been amended to include a  $\pm$  as follows:

-- The non-Euclidean  $\pm 0^\circ-90^\circ-90^\circ$  metric, which extends to infinity at the vertex, is an --

Page 7 paragraph 2 line 2 has been amended to include a  $\pm$  as follows:

-- intermediate form of the  $\Delta$  Hilbert isosceles triangle. In the  $\pm 0^\circ-90^\circ-90^\circ$  metric, however, --

Page 11 line 3 has been amended as follows:

--  $\partial^2 E_y / \partial t^2 = A \cos(\omega t + \phi^o) + \Delta + (-)^{1/2} + \text{zero vector}$  --

Page 11 line 7 has been amended to:

-- extraction /detection for *match-with-rotate* algorithm,  $(-)^{1/2} = \text{yod}$  for *cuspid root method* algorithm, --

## In the Claims

Page 12 Claim 1 paragraph 2 line 5 has been amended as follows:

-- digit positions intact where the matching digits were extracted /detected from, which are used --

Paragraph 5 on page 12 Claim 1 has been added as follows:

-- method of detection. --

Page 13 Claim 4 on lines 4 and 5 has been amended as follows:

-- segmented by  $x_n - x_{n-1} = r_n$  from which the matching digits were extracted /detected in the differential equation  $m(dL/d\theta) = \pm kL + mg$  are coded in binary to 1.) simulink simulation code and routed to 2.) microcontroller (d-space), for  
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Page 13 Claim 5 line 8 has been amended as follows:

-- positions for data projection of clusters (FIG. 6). --

Claims 11 and 12 have been added as follows:

12. The claim of 1 for numeric control and modeling in a signal detector (of an antenna receiver) for electromagnetic wave pattern recognition of the source.

13. The claim of 1 for numeric control and modeling of a  $\pm 0^\circ$ - $90^\circ$ - $90^\circ$  non-Euclidean circuit gate (FIG. 1) of a receiver.

### **In the Abstract**

In the Abstract line 8 has been amended as follows:

-- matrices as the mechanisms of sequence extraction /detection whereby numerical based-learning --

## REMARKS/ARGUMENTS

All claims remain in this application. Claims 1, 4 and 5 have been amended. Claims 11 and 12 have been added.

**Attached hereto is a marked-up version of the changes made to the document and claims by the current amendments. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE"**

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

A handwritten signature in cursive script that reads "Joseph Dale Helmick".

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